IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Martin Debreczeny	§	Confirmation No.:	8831
Serial No.: 10/820,637	§	Group Art Unit:	3768
Filed: April 7, 2004	§	Examiner:	Winakur, Eric Frank
For: PHOTOPLETHYSMOGRAPHY WITH A SPATIALLY HOMOGENOUS MULTI-COLOR SOURCE	§	Atty. Docket:	P0396R TYHC:0041/FLE

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October 27, 2009	**/John Rariden/**
Date	John M. Rariden Reg. No. 54,388

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

This Reply Brief is being filed in furtherance of the Notice of Appeal mailed on December 2, 2008, and received by the Patent Office on December 5, 2008, and the corrected Appeal Brief filed on April 7, 2009, and in response to the Examiner's Answer mailed on August 28, 2009.

In the Examiner's Answer, the Examiner addresses certain arguments raised by the Appellant with respect to the grounds of rejection. With respect to the first ground of rejection, the Examiner argues against the Appellant's position that the preamble, i.e., a physiological sensor, imposes a structural limitation on claims 1-4 and 13. In arguing against this position, the Examiner states:

> MPEP 2111.02 (which includes reference to relevant court decisions) offers guidance on this matter. In particular, when the preamble 1) provides antecedent basis for structural limitations in the claim, or 2) is necessary to give meaning to the elements of the body of the claim, or 3) is otherwise essential to understand limitations of the body of the claim, then the preamble is a limitation of the claim. However, when as in the instant application, the language of the body of the claim is sufficient to set out the complete invention, then the claim preamble is not a limitation of the claim. As such, the claim is defined by the elements set forth in the body of the claim, which in claim 1 is the first inlet, the second inlet, the means for spatially homogenizing and the outlet (claim 13 recites a similar arrangement). These elements are illustrated in Applicant's Figure 2. Likewise, Figure 2 of Reynolds discloses a structurally indistinguishable arrangement. Thus one must conclude that Reynolds meets all of the claim limitations.

Examiner's Answer, pp. 5-6.

Appellant respectfully offers the following observations with respect to the Examiner's comments. With respect to the Examiner's reliance on and citation to the M.P.E.P., the Appellant notes that the Examiner omitted guidance provided in the M.P.E.P. and the cases cited therein. In particular, contrary to the enumerated "test" outlined by the Examiner, the Appellant notes that the M.P.E.P. (and the cited case law) instead states that:

> The determination of whether a preamble limits a claim is made on a case-by-case basis in light of the facts in each case; there is no litmus test defining when a preamble limits the scope of a claim. *Catalina Mktg. Int'l v. Coolsavings.com, Inc.*, 289 F.3d 801, 808, 62 USPQ2d 1781, 1785 (Fed. Cir. 2002).

M.P.E.P. 2111.02 (emphasis added), and that:

> "[A] claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). ... *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951) (A preamble reciting "An abrasive article" was deemed essential to point out the invention defined by claims to an article comprising abrasive grains and a hardened binder and the process of making it. The court stated "it is only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article. Every union of substances capable *inter alia* of use as abrasive grains and a binder is not an 'abrasive article.'" Therefore, the preamble served to further define the structure of the article produced.).

M.P.E.P. §2111.02 (emphasis added). Further M.P.E.P. §2111.02 (I) goes on to explain that:

> Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989) (The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application "to gain an understanding of what the inventors actually invented and intended to encompass by the claim.") .... See also *In re Stencel*, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987). (The claim at issue was directed to a driver for setting a joint of a threaded collar*>;< however>,< the body of the claim did not directly include the structure of the collar as part of the claimed article. The examiner did not consider the preamble, which did set forth the structure of the collar, as limiting the claim. The court found that the collar structure could not be ignored. While the claim was not directly limited to the collar, the collar structure recited in

> the preamble did limit the structure of the driver. "[T]he framework - the teachings of the prior art - against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims are so limited." Id. at 1073, 828 F.2d at 754.).

M.P.E.P. §2111.02 (emphasis added).

With the foregoing passages in mind, the Appellant notes the following. First, contrary to the Examiner's misleading indication that there is a concrete, enumerated test, the case law and the M.P.E.P. appear to be clear that "there is no litmus test" and, instead, a "determination of whether a preamble limits a claim is made on a case-by-case basis in light of the facts in each case." M.P.E.P. 2111.02 (citing to *Catalina Mktg. Int'l.*). Thus, the Examiner's hard and fast reliance on the factors enumerated in the Examiner's Answer is misplaced.

Further, even if one were to accept the Examiner's three factors as being the appropriate test, Appellant notes that the Examiner still appears to be mistaken. In particular, factors (2) and (3) listed by the Examiner are that the preamble "is necessary to give meaning to the elements of the body of the claim, or [] is otherwise essential to understand limitations of the body of the claim. Examiner's Answer, p. 6. Appellant notes that both of these factors appear to weigh in favor of the preamble being considered a limitation of the relevant claims. In particular, contrary to the Examiner's abbreviated listing of the limitations of claims 1 and 13 (i.e., "the first inlet, the second inlet, the means for spatially homogenizing and the outlet"), claim 1 actually recites, *inter alia*:

> means for spatially homogenizing the electromagnetic energy transmitted from the first source with the electromagnetic energy transmitted from the second source in a non-random configuration to form a spatially-homogenized multi-source electromagnetic energy configured to enable measurement of a physiological parameter of a subject; and

> an outlet configured to deliver the spatially-homogenized multi-source electromagnetic energy to a tissue location of the subject for the measurement of the physiological parameter

while claim 13 recites, *inter alia*:

> an outlet configured to emit a spatially homogenized electromagnetic energy into a tissue location of a subject to enable measurement of a physiological parameter, the outlet comprising the distal ends of the first plurality of optical fibers arranged in a spatially mixed non-random configuration with the distal ends of the second plurality of optical fibers.

Examiner's Answer, p. 6; Application, claims 1 and 13 (emphasis added). Thus, the recited "physiological sensor" of claims 1 and 13 clearly gives meaning to those elements of the body of claims 1 and 13 which relate to the measurement of a physiological parameter of a subject and to the delivery of energy to a tissue location of the subject for the measurement of the physiological parameter. Further, the recited "physiological sensor" of the preamble would appear to be useful in understanding the aforementioned limitations of the body of the claim. That is, limitations related to tissue locations, and measurement of physiological parameters make sense in the context of a physiological sensor, but not outside of such a context. Thus, even if one were to accept the Examiner's proposed framework for determining whether a preamble is to be considered a limitation, based on the Examiner's own criteria the presently recited "physiological sensor" of the preamble of claims 1 and 13 is a proper limitation when the claims are properly considered in their entirety, not in the limited and piecemeal fashion set forth by the Examiner.

However, returning to the actual analysis set forth in the M.P.E.P. and in the case law relied upon therein, as indicated in the M.P.E.P.:

> "[A] claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).

M.P.E.P. §2111.02. For the reasons explained above, the respective bodies of claims 1 and 13 refer to physiological measurement, tissue locations, and so forth, thereby suggesting the significance of the "physiological sensor" recited in the preamble of claims 1 and 13. Thus the recited "physiological sensor" of the preambles of claims 1 and 13, when read in the context of the entire respective claim, clearly recites a limitation of the claim.

Further, examples such as the *Kropa, Corning Glass Works*, and *In re Stencel* cases cited in the M.P.E.P. provide additional support for considering the "physiological sensor" recitation of claims 1 and 13 as a substantive aspect of the claims. For example, the claim at issue in the *Kropa* case merely recited "[a]n abrasive article". *Kropa*, 88 U.S.P.Q. 478, 481 (C.C.P.A. 1951). However, this recitation was interpreted by the court as being essential to point out the invention defined by the claims since it was "only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article. Every union of substances capable *inter alia* of use as abrasive grains and a binder is not an 'abrasive article.'" *Id.* Similarly, with respect to claim 1, every union of a first inlet, a second inlet, means for spatially homogenizing, and an outlet (to borrow the Examiner's listing of the elements of claims 1 and 13) is not a physiological sensor. Indeed, if one were to accept the Examiner's representations about

the Reynolds reference as correct, the Reynolds reference itself would confirm this point as it presumably teaches such features but does not teach a physiological sensor (instead teaching a color photography lighting system). Reynolds, Abstract. Therefore, as with the "abrasive article" of the *Kropa* case, the present preamble of a physiological sensor serves to further define the structure of the article of claims 1 and 13.

Likewise, with respect to the *Corning Glass Works* case also cited in the M.PE.P., the determination of whether a preamble recitation constitutes a structural limitation is made by reviewing the entirety of the application "to gain an understanding of what the inventors actually invented and intended to encompass by the claim." 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989). Here consideration of the entirety of the application, which is generally directed to use of a medical diagnostic apparatus, such as a pulse oximeter, at a tissue location for measuring a physiological parameter, would almost certainly lead one to conclude that the recitation of a "physiological sensor" did not constitute mere verbiage, but instead constituted a meaningful limitation to the claims at issue. In particular, the application clearly describes the construction and use of a physiological sensor for measuring physiological parameters. *See* Application, paragraphs [0001], [0008], [0010], [0014], [0016]-[0021], [0024]-[0028].

Likewise, in *In re Stencel* the court found it necessary to read the structure of a collar as a limitation of the claim, despite the body of the claim not reciting the collar, because "[t]he framework - the teachings of the prior art - against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims are so limited." 828 F.2d 751, 754, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987). Here, similarly, the recitation of a "physiological sensor" in the preambles of claims 1 and 13 appears to clearly constitute a framework against which patentability should be assessed, just as with the drivers of *In re Stencel* which were only properly assessed in the context of the collar recited in the preamble. That is, the recited "physiological sensor" of the preamble of claims 1 and 13 clearly provides a framework,

i.e., context, in which the remainder of the claim makes sense and, therefore, against which patentability should be measured.

Thus, actual review of the guidance set forth in the M.P.E.P. and the relevant case law clearly suggests that it is improper and erroneous for the Examiner to read out the recited "physiological sensor" of the preamble of claims 1 and 13, particularly in view of the further recitations of respective claims 1 and 13 as well as the clear guidance given by the remainder of the application. Indeed, in view of the case law examples provided by, and presumably relied upon, by the M.P.E.P., it would be inconsistent and arbitrary to discard the recitations of the present preambles of claims 1 and 13. Further, once the recited preamble of a "physiological sensor" is properly considered (along with the related recitations in the bodies of claims 1 and 13 to tissue locations and to measurement of physiological parameters), it appears clear that the Reynolds reference does not anticipate independent claims 1 or 13, or those claims depending therefrom.

In addition, with regard to the Examiner's apparent reliance on the presumed similarity of FIG. 2 of the present case and FIG. 2 of the Reynolds reference, Appellant does not agree that the these figures show "structurally indistinguishable arrangement[s]" as alleged by the Examiner. Examiner's Answer, p. 6. In particular, FIG. 2 of the Reynolds reference show three bundles of light fibers (presumably one each for the respective red, green, and blue (RGB) channels) and shows an ordered arrangement of RGB elements at a faceplate, with no indication as to the manner in which the bundles are joined or come together. Reynolds, Fig. 2. These features are all distinguishable from FIG. 2 of the present application.

However, even if the Examiner's assertion was correct, Appellant believes any such similarity to be entirely irrelevant to the present analysis. The observation that an application has a similar (or even identical) figure in common with a different application or a patent is entirely irrelevant to the patentability analysis of the claims and/or to the analysis of whether a preamble constitutes a limitation. Instead, the Examiner's comments merely risk confusing the actual issues with respect to the patentability

analysis, which relate to the language recited in the claims and what is taught in the cited art, not the supposed similarity of two figures.

Further, with regard to the first ground of rejection the Examiner goes on to state:

> it is noted that in the paragraph bridging pages 2 – 3 of the Final Office action mailed 10/16/08, Examiner noted the difference between claims 1 and 13 (no detector claimed as part of the "sensor") and the other independent claims (having a detector as part of the claimed arrangement). Applicants has not commented on this point in the Appeal Brief, and thus appears to concede that the claims are of differing scope. These differences appear to give further evidence of the intended scope of the claims, and presence of this differentiation supports Examiner's position that the claims are defined by the elements of the body of the claim. As such, Reynolds is considered to meet the broadest reasonable interpretation of the limitations of claims 1 – 4 and 13.

Examiner's Answer, pp. 6-7. Appellant apologizes if any confusion was created by failing to make an explicit rebuttal of what appeared to be a tangential comment made by the Examiner in the Final Office Action. Indeed, Appellant agrees that each claim of the present application differs in scope. However, the observation that the claims differ in scope does not support the conclusion that explicit structural recitations in the present claims are not relevant merely because those recitations are present in more than one claim. In particular, the fact that claims 1, 5, and 13 each recite a "physiological sensor" in the preamble would appear to emphasize, not de-emphasize, the significance of this recitation with respect to what constitutes the relevant prior art, (i.e., the subject matter is not simply recited as a generic or non-specific device, article, structure, object, article of manufacture, or so forth). By the Examiner's logic, the terms "inlet", "outlet", "electromagnetic energy", "source", and "homogenize" (or its derivatives) would all be read out of the respective claims because they are present in two or more of the claims at issue. Clearly this is not a reasonable position. The observation that a word or phrase is present in more than one claim, whether in the preamble or otherwise, is no grounds for

reading that limitation out of the claims at issue. Instead, if a word or phrase constitutes a limitation of the claims (as we have explained with respect to the term "physiological sensor" above), the word or phrase must be considered when reviewing the cited art, regardless of whether the phrase is also used in other claims. With this in mind, and as explained above, claims 1-4 and 13 recite, and are directed to, a physiological sensor, which is not shown or taught in the Reynolds reference.

With respect to the second and third grounds of rejection, the Examiner argued, *inter alia*, that:

> Applicant alleges that even if Reynolds is considered analogous art, the references are not combinable. Applicant and Examiner agree that Vari et al. teach an arrangement wherein optical signals transmitted via optical fibers are randomly mixed to achieve a homogenized light signal and Reynolds teaches a non-random mixing arrangement to provide an intermixed, composite output. Thus, there does not appear to be dispute that operation of both teachings in their intended manners results in homogenized or intermixed light output. Further, it appears that both arrangements perform the task of light mixing equally well, and Applicant has not noted any unexpected results with their arrangement. As both teachings of Vari et al. and Reynolds input light from separate optical sources into designated optical fiber bundles, where the various bundles are mixed to achieve a homogenized light output, one or skill would have a reasonable expectation that substitution of a non-random output arrangement)of Reynolds) for a random output arrangement (of Vari et al) would have a predictable result of also yielding a homogenized light output (per MPEP 2143 in discussion of *KSR*, Rationale B). Applicant's arguments regarding no direct prior art recognition of equivalence and no objective evidence of reason to combine are noted. However, direct prior art recognition of equivalence is not the only manner to make a *prima facie* showing, and as demonstrated above, the similarities of the structures and results between Vari et al. and Reynolds with regard to light homogenization, a [sic] well as the reasonable expectation of a predictable result is sufficient for such a showing.

Examiner's Answer, pp. 8-9. Appellant respectfully disagrees with the Examiner's characterization that there is a lack of dispute "that operation of both teachings in their intended manners results in homogenized or intermixed light output." *Id.* p. 8. In particular, in the Appeal Brief, Appellant specifically challenged the Examiner's assertion of equivalence of randomized and ordered fiber bundles as being deficient in view of the requirements set forth in the M.P.E.P. to establish a showing of equivalence. Appeal Brief filed April 7, 2009, p. 16. Specifically, per M.P.E.P. 2144.06, Appellant noted that such equivalence must be recognized in the prior art and requested that the Examiner identify prior art recognizing the alleged equivalence, a showing the Examiner has consistently failed to make. *Id.*

Appellant suggests that the reason the Examiner has failed to make this showing is that it cannot be made, i.e., a random arrangement $\neq$ an ordered arrangement. In particular, these fiber arrangements are not equivalent for at least the following reasons. First, an ordered fiber arrangement, as taught by Reynolds, produces a specific, known, and even distribution of the colors being combined to form the composite color. These factors are clearly of significance in the teachings of the Reynolds reference as the Reynolds reference devotes considerable discussion to the use of a specific order of the light fibers and explains the benefits of the composite color produced by such an ordering. Reynolds, FIGS. 2, 3; col. 2, lines 60-64, col. 6, lines 42-47, col. 6, line 55 – col. 7, line 33, col. 7, lines 51-55. In particular, the Reynolds reference appears to rely on the adjacency of red, blue, and green fiber strands so that "the adjacent red, green, and blue cones of light overlap at a very short distance from composite output end 70 where they additively mix to form light of a composite color." Reynolds, col. 7, lines 51-55 (emphasis added). Thus, as taught by the Reynolds reference, an ordered arrangement of optical fibers provides adjacency of red, green, and blue light emissions to reliably yield a desired composite color. Reynolds, FIGS. 2, 3; col. 2, lines 60-64, col. 6, lines 42-47, col. 6, line 55 – col. 7, line 33, col. 7, lines 51-55.

Conversely, a random ordering of fibers would yield random adjacencies, including adjacency of fibers transmitting the same color, squarely contrary to the ordered arrangement of fibers as taught in the Reynolds reference. Likewise, a random ordering, by definition, would yield clumping and/or other non-homogeneous regions to virtually any distribution of optical fibers, such that the distribution of colors in an application as taught in the Reynolds reference would not necessarily have the desired homogeneous distribution of light transmitting fibers nor, by definition, would it yield the "predictable" result argued by the Examiner. Examiner's Answer, p. 9. Thus, one difference between a randomized and an ordered arrangement of optical fibers is the even distribution of differently colored fibers that can be achieved in an ordered arrangement (such as the distribution taught in the Reynolds reference in which no two adjacent fibers transmit the same color of light) that would not necessarily be reproduced in a random arrangement of fibers. Reynolds, FIG. 2.

Further, from an implementation standpoint, Appellant does not believe the time, cost, or effort of implementing a random arrangement of optical fibers is the same as implementing an ordered arrangement of optical fibers. In particular, Appellant believes that the time, cost, and effort of implementing an ordered arrangement of optical fibers is likely greater than that of implementing a random arrangement. Thus, the prior art is unlikely to view these arrangements of optical fibers as "equivalents" when considering what type of arrangement to implement in a device as the difficulty of implementing the different arrangements is not the same. Therefore, the failure of a random arrangement of optical fibers to reliably provide the degree and consistency of light homogeneity as an ordered arrangement (except by chance) and the different levels of time, cost, and effort involved in implementing ordered and random fiber arrangements are merely two examples of the lack of equivalence between these two arrangements, contrary to the Examiner's representations to the contrary. In view of at least these factors, Appellant does not believe that the equivalence of random and ordered arrangements of optical fibers can be demonstrated in the prior art, nor has the Examiner made such a showing, as respectfully requested in the Appeal Brief.

If the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: October 27, 2009

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